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OCT 15 2002

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2002-006-00,
LICENSE NO. NPF-14
PLA-5534 **Docket No. 387**

Attached is Licensee Event Report (LER) 50-387/2002-006-00.

This report is submitted as a voluntary LER per the Susquehanna Steam Electric Station Emergency Plan, in that an Unusual Event was declared after failure of Startup Transformer (ST) No. 20.

This LER also is submitted per 10CFR50.73(a)(2)(i)(A) for the completion of a Unit 2 shutdown required by Technical Specifications and 10CFR50.73(a)(2)(iv)(A) in that the Unit 2 reactor was manually scrammed following the trip of both reactor recirculation pumps. The initiation of a manual scram and the associated isolations are considered unplanned actuations of systems that mitigate the consequences of significant events.

In addition, this LER is submitted per 10CFR50.73(a)(2)(i)(B) in that Unit 1 operated beyond a 72 hour Limiting Condition for Operation (LCO) which is a condition prohibited by the Technical Specifications. Although reportable, enforcement discretion was granted to allow Unit 1 to continue operation beyond the 72 hour LCO for a total of 7 days while the ST No. 20 replacement work was completed and this offsite power source restored (reference PLA-5533 dated 10/5/2002).

There were no consequences to the health and safety of the public.

Richard L. Anderson
Vice President-Nuclear Operations

Attachment

IE22

cc: Mr. H. J. Miller
Regional Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19408

cc: Mr. S. L. Hansell
Sr. Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 35
Berwick, PA 18603-0035

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request. 50 hours Reported lessons learned are incorporated into the licensing process and fed back to industry Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U S Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503 If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Unusual Event Declared Due to Onsite Explosion on Startup Transformer ST-20.

5 EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Susq. SES - Unit 2	05000388
10	03	2002	2002	– 006	– 00	10	15	2002	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20 2201(b)		20 2203(a)(3)(ii)		50 73(a)(2)(ii)(B)	50 73(a)(2)(ix)(A)
20 2201(d)		20 2203(a)(4)		50 73(a)(2)(iii)	50.73(a)(2)(x)
20 2203(a)(1)		50 36(c)(1)(i)(A)	x	50.73(a)(2)(iv)(A)	73.71(a)(4)
20 2203(a)(2)(i)		50 36(c)(1)(ii)(A)		50 73(a)(2)(v)(A)	73.71(a)(5)
20 2203(a)(2)(ii)		50 36(c)(2)		50 73(a)(2)(v)(B)	X OTHER Specify in Abstract below or in NRC Form 366A 72.75(d)(2)
20 2203(a)(2)(iii)		50 46(a)(3)(ii)		50.73(a)(2)(v)(C)	
20 2203(a)(2)(iv)	x	50 73(a)(2)(i)(A)		50.73(a)(2)(v)(D)	
20 2203(a)(2)(v)	x	50 73(a)(2)(i)(B)		50.73(a)(2)(vii)	
20.2203(a)(2)(vi)		50 73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)	
20 2203(a)(3)(i)		50 73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
John L. Tripoli - Nuclear Regulatory Affairs	570 / 542-3021

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	FK	XFMR	F055	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).		NO		01	15	2003

16. ABSTRACT (Limit to 1400 spaces, i.e , approximately 15 single-spaced typewritten lines)

At approximately 0231 hours on October 3, 2002, a fire occurred on Startup Transformer ST No. 20. The fire was extinguished automatically by the transformer's deluge system within 15 minutes. Unit 1 was in MODE 1 - Power Operation operating at 100% power and Unit 2 was in MODE 2 –Startup. Unit 2 was manually scrammed due to a loss of both Reactor Recirculation pumps. Unit 1 continued operation at 100% power. The fire was extinguished quickly and caused no impact to systems required for safe shutdown. An Emergency Plan Unusual Event was declared at 0315 when it was determined that an explosion occurred during the fire. The Unusual Event was terminated at 0552 on October 3, 2002. Enforcement discretion was granted to allow Unit 1 to continue operation beyond a 72 hour LCO for a total of 7 days while the ST-20 replacement work was completed and this offsite power source restored. Startup Transformer ST No. 20 was replaced and declared operable on October 10, 2002. No safety barriers were affected by this event. There were no consequences to the health and safety of the public as a result of this event.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

EVENT DESCRIPTION

At approximately 0230 hours on October 3, 2002, a fire occurred on Startup Transformer (ST) No. 20 (EIIS Code: FK). Unit 1 was in MODE 1 - Power Operation operating at 100% power and Unit 2 was in MODE 2 –Startup. Unit 2 was manually scrammed due to a loss of both Reactor Recirculation (EIIS Code: AD) pumps. Unit 1 continued operation at 100% power.

The fire brigade was immediately dispatched to ST No. 20 and off-site fire companies were called as a precautionary measure. The fire was extinguished by the transformer's automatic deluge system (EIIS Code: KP) and the offsite companies were not needed. Subsequently, the Control Room received information that led to a determination that the transformer fire may have been accompanied by explosions. Emergency Action Level (EAL) 14.1 provides criteria to declare an Unusual Event for an explosion inside the security protected area with no significant damage to station facilities. The Unusual Event was declared at 0315 on October 3, 2002 and appropriate notifications were made. The Unusual Event was terminated a few hours later at 0552.

ST No. 20 was powering the Unit 2 reactor recirculation pumps when the event occurred. The transformer fault led to an isolation of this power supply and a Unit 2 shutdown was required since both reactor recirculation pumps tripped. A manual scram using the Reactor Protection system was utilized to complete this shutdown. Unit 2 was in MODE 2 – Startup at a reactor pressure of 435 psig and range 8 on the Intermediate Range Monitors (IRMs) (EIIS Code: IG). All control rods inserted and the shutdown was completed successfully.

As a result of the failure of ST No. 20, one off-site power source for the station was not available. The remaining source of offsite power continued to be available via Startup Transformer (ST) No. 10 and provided power to each of the four 4.16 kV Engineered Safeguards System (ESS) (EIIS Code: EB) buses (A, B, C and D) for both Unit 1 and Unit 2 (8 total buses). LCOs were entered on Unit 1 and Unit 2. Compensatory measures were taken to reduce the potential for the loss on ST No. 10 and to ensure that equipment required to mitigate the consequences of a loss of ST No. 10 were maintained available. Unit 1 continued to operate in MODE 1 – Power Operation. A number of Unit 1 systems were affected by the ST No. 20 failure. These systems functioned as designed and were recovered as applicable per plant procedures.

CAUSE OF EVENT

Based on preliminary investigations, the transformer failure originated internally to the transformer. Some protective equipment on ST No. 20 did not function as designed. Preliminary assessment by an Event Review Team assigned to investigate this event has not identified any inherent failure in the design or maintenance practices that would be indicative of common mode failures. The transformer problem does not appear to be an end of life failure. The final conclusions of this team will be provided in a supplemental report.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

REPORTABILITY DETERMINATION/ASSESSMENT OF SAFETY CONSEQUENCES

This report is submitted as a voluntary LER per the Susquehanna Steam Electric Station Emergency Plan Table 5.2 in that an Unusual Event was declared after an onsite explosion occurred on ST No. 20. In accordance with the guidance provided in Susquehanna Steam Electric Station Emergency Plan Table 5.2, the required submission date for this report is October 17, 2002.

This event was also determined to be reportable per 10CFR50.73(a)(2)(i)(A) for the completion of a Unit 2 shutdown required by the Technical Specifications and per 10CFR50.73(a)(2)(iv)(A) in that an unplanned actuation occurred when the Reactor Protection System (EIIS Code: JC) was manually initiated for a reactor scram. The required submission date for this report is December 2, 2002.

The loss of ST No. 20 reduced the station's available offsite power sources and resulted in a 72 hour limiting condition for operation (LCO) on Unit 1. A Notice of Enforcement Discretion (NOED) was requested and granted to allow Unit 1 to continue operation for a total of 7 days while the ST No. 20 replacement work was completed and this offsite power source restored. Although enforcement discretion was granted, the operation of Unit 1 beyond the 72 hour LCO is a condition prohibited by the Technical Specifications and is still reportable per 10CFR50.73(a)(2)(i)(B). The required submission date for this report is December 5, 2002.

The transformer is located adjacent to the Unit 2 Turbine Building. Neither the fire nor the explosions posed a potential danger to other equipment required for safe shutdown. No safety barriers were affected by this event. The fire was extinguished quickly and caused no impact to systems required for safe shutdown. Since Unit 2 was shutdown with no adverse circumstances and Unit 1 was maintained in safe operation, there were no consequences to the health and safety of the public as a result of this event.

CORRECTIVE ACTIONS

ST No. 20 was replaced and declared operable on October 10, 2002. In addition, several associated components were replaced. Prior to placing the new ST No. 20 Transformer in service, extensive testing was performed to ensure the new transformer was in satisfactory condition.

Station personnel reviewed the status and condition of ST No.10 more closely during the ST No. 20 outage. This review consisted of visual inspections, thermography, and oil sample analysis. No adverse conditions were identified. In order to improve equipment performance, ST No. 10 is scheduled for a preventative maintenance outage.

Compensatory measures were also taken to ensure availability of equipment used to mitigate the consequences of a loss of ST No. 10, in accordance with the NOED.

Additional corrective actions are expected as a result of an Event Review Team's review of the ST No.20 failure, and review of the activation of the Emergency Plan.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)*

ADDITIONAL INFORMATION

Failed Component Information: Transformer - Startup Transformer No. 20 (0X104)
Manufacturer – Federal Pacific Electric
Model Number - OLTC 45MVA 60MVA 75MVA Power Transformer

Notice of Enforcement Discretion: PLA-5533 dated 10/5/2002

Past Similar Events:

Previous Events with similar results, but with dissimilar causes:

Docket No 50-387 LER 84-034-00 – Phase-to-phase fault on 230kV line.

Docket No. 50-388 LER 85-025-00 – Generator load reject, reactor scram. Lightning strike on 500 kV line caused logic relay failure.

Docket No. 50-387 LER 88-006-00 – Generator load reject, reactor scram. Worker bumped 230 kV yard span protection relay.

Docket No. 50-388 LER 88-010-00 – Generator load reject, reactor scram. Lightning strike on 500 kV line caused misoperation of ground fault relay.

Docket No. 50-387 LER 89-027-00 – Generator load reject, reactor scram. Loss of electrical services to the 230 kV switchyard caused tripping of main distribution breakers resulting in the generator load reject.

Docket No. 50-388 LER 90-002-00 – Generator load reject, reactor scram. Actuation of 500 kV line protective circuitry caused tripping of the main distribution breakers resulting in the generation load reject.

Docket No. 50-388 LER 95-005-00 – Generator load reject, reactor scram. Actuation of 500 kV line protective circuitry caused tripping of the main distribution breakers resulting in the generation load reject.

Docket No. 50-388 LER 99-003-00 – Generator load reject, reactor scram. Unit 2 "A" main transformer experienced a failure of a neutral bushing.